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ABSTRACT

Suggestions are presented to assist the nontechnically trained English as a second language teacher to create a syllabus for a technical writing course for foreign students who are studying science and technology. The syllabus for the English for Science and Technology (EST) writing course is based on the format of technical writing derived from native-speaker texts on the subject. The course involves writing five short reports concerned with description (i.e., amplified description, description of a mechanism or body part, description of a process, classification, and an abstract), and one or more long reports concerned with argumentation. The types of long reports may include a feasibility study, research report, and progress report. Before any writing assignment is given, a skeleton structure is presented to the class, along with a model of the report being studied. Grammar, as an adjunct to the writing sequence, also is taught. The article system in English is one of the most difficult grammatical points for a foreign student to master. It is also necessary to devote considerable attention to the relative clause, including subject- and object-form relative clauses and the defining (restrictive) versus nondefining (nonrestrictive) distinction. Other grammatical points are covered, including compound nouns and adjectives and the passive voice. Stylistic and rhetorical points of interest concern definitions; transitional devices; paraphrasing and quoting; wordiness; and figures, graphs, and equations. The skeleton structures of a short and long report are included. (SW)

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Teachers of English to
Speakers of Other Languages

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TEACHING ENGLISH FOR SCIENCE AND TECHNOLOGY (EST) THROUGH TECHNICAL WRITING

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Native speaker texts on technical writing are used as the source of information concerning the format of typical technical reports, a series of which provides the basis of an outline for teaching the EST writing class. The important grammatical structures and stylistic/rhetorical requirements peculiar to scientific writing are taught in preparing students to produce such reports. The outline is designed for the experienced yet nontechnically trained ESL instructor.

As the foreign student population becomes increasingly concerned with particular areas of expertise, the need for English for science and technology (EST) is becoming more apparent. Most ESL teachers, however, feel threatened at the idea of teaching EST because they have no background in science. The purpose of this paper is to show that it is possible for the nontechnically trained ESL teacher to create an EST writing course syllabus based on the format of technical writing derived from native-speaker texts on the subject.

This paper is based on presentations given at the 1980 CATESOL Bay Area Mini-Conference at the University of San Francisco, November 1, 1980, and at the 1981 CATESOL Convention in Monterey, April 3, 1981.

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Technical writing differs from non-technical writing in the expectations with which the reader approaches it. The reader of non-technical writing reads for ideas and/or information. The time required to read the composition is rarely of consequence. The reader of a technical report, on the other hand, reads for facts, and time can be of great consequence (imagine the manager who has to sort through twenty proposals). It has been said (Huckin, et al. 1980) that the best technical report is the one that does not have to be read. By "read" is meant "read through," for the technical report is set up like a filing system wherein any piece of information can be readily found. There is no persuasive vocabulary (e.g., huge for large), no literary devices (e.g., onomatopoeia, metaphor), in fact, no attempt to manipulate the reader at all. The reader expects to find straightforward information in clearly designated sections of the report.

The idea on which the EST course to be described is based, concerns the "philosophy of exchange." This idea presupposes two facts: that the students know their fields and that the teacher knows how to write. The students are only asked to write in their stated fields, and it seems to be the case that they are better motivated to write about matters in which they are presumed to be the experts. To insure the relative expertise of the student in his or her field, the class is limited to those students who have had university-level experience of mathematics, chemistry, physics, engineering, biology, physiology, etc. The student is further required to buy at least one textbook in the chosen major.

The backbone of the EST writing course is a sequence of technical compositions consisting of five "short" reports and one or more "long" ones. On the first day of class, all students take a diagnostic test in which they are asked to describe a simple scientific diagram in 150 words. These diagrams are taken from a variety of fields and include such items as a paramecium, a refrigeration cycle, and a Hoffman apparatus. An error tally from these exams provides the first overview of the grammatical and stylistic areas that need to be covered.

Before any writing assignment is given, a skeleton structure is presented to the class. The skeleton for a short report (with the exception of the amplified definition and the abstract) is as follows:

Paragraph i

Sentence 1: Definition
Sentence 2: Purpose (if not included in the definition)
Sentence 3: External description
Sentence 4: Plan of development sentence

Paragraph ii

Description of the first element of the list contained in the plan of development sentence.

Paragraph iii

Description of the second element of the list contained in the plan of development sentence.

Paragraph iv

Description of the third element of the list contained in the plan of development sentence.

Paragraph v

Conclusion

The plan of development sentence is also known as a forecasting statement and in non-technical writing is called a thesis sentence. The elements in the list reflect the type of report being written. The description of a mechanism lists parts, the description of a process lists steps of a process, and the classification lists classes or categories.

Having been introduced to the essential structure of the writing assignment, the students are given a model of the report being studied. The students, in pairs or small groups, analyze the model to see how the skeletal structure is reflected therein. They are then asked to compose a report in their own fields, deriving topics from their own knowledge, from a textbook, or from library research. The instructor can assist in the topic selection to whatever extent deemed necessary.

The short reports are concerned with description. They are practiced first so that later reports can be constructed from them, yet they comprise full reports in themselves. The five short reports are these:

A. Amplified Definition

The amplified definition is a formal definition embellished by limited parts description, methods of use, basic operating principle, special types or uses, etc.

B. Description of a Mechanism (or Body Part)

The description of a mechanism describes the component parts of a mechanism or body part.

C. Description of a Process

The description of a process describes the steps of a process and may include a description of parts and a flow chart.

D. Classification

The classification describes the categories or classes in which a given set of objects fits.

E. Abstract

The abstract is a radically reduced summary of a full paper. Students are given an article of their own choosing from Scientific American to read. After working on paraphrasing and quoting exercises, they roughly outline the approximately 10-page article by determining a subtitle for each division (indicated by a double space in Scientific American) and by composing a single summarizing sentence for each paragraph. From the resulting list, the students are asked to strike out the nonessential sentences until the total amount of information comprises a page or less, the goal being about 2% of the original article. A model abstract plus a model breakdown outline are provided to aid the student.

The skeleton of a long report is as follows:

A. Transmittal correspondence (cover letter)

B. Title page, Table of Contents, and List of Illustrations

C. Introductory summary (abstract)

D. Introduction (A but B→ C) (Huckin, et al. 1980)

1. Statement of the desirable characteristics of the subject under discussion, i.e., what we want (sometimes unexpressed)

2. Problem ("however" statement)

3. Hypothesis (how you intend to solve the problem)

E. Body

F. Conclusion(s)

G. Recommendation(s)

H. Bibliography

I. Appendix

The long reports are concerned with argumentation (through factual proof, not through persuasion.) The types covered, time permitting, are these:

A. Feasibility Study (Cost Analysis)

The students are given a choice of problems to solve which they must then write up into a formal cost analysis. The body of such a report consists of a Cost Section and a Capability Section.

B. Research Report (Write-up of an experiment)

This is an alternative to the feasibility study in which the student writes up a real or imaginary experiment. It was instituted primarily for medical students who failed to see the need to write feasibility studies.

C. Progress Report

The Progress report is provided as an additional type of report should the student be interested. It is concerned, as the name suggests, with the progress being made on a particular project, the amount of work completed in a given time. The body of such a report consists of a summary of the activity for the time period, a summary of the man-hours expended, specific items requiring coordination, and a work schedule for the next reporting period. Segments of this information may be in chart form, and the peripheral elements (introductory summary, table of contents, etc.) may be omitted.[1]

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[1]Technical writing classes for foreign students have recently come under fire (TESOL Newsletter, April 1981). I would agree that some types of technical reports (e.g., feasibility studies and progress reports) are less useful for students planning to go to the university as far as their English requirement is concerned. However, my year-long experience as an EST instructor for the Chemical Engineering Department at U. C. Berkeley made it clear that the ability to produce the kind of reports worked on in the EST class, including feasibility studies, is necessary for required course work in attaining the undergraduate degree in Chemical Engineering.

Grammatical Points of Special Interest

The writing sequence is the focus of the course, not grammar. I strongly disagree with those ESL teachers who argue, "A five paragraph essay? You must be joking. They can't even write a correct sentence yet." It has been my experience that, given the assumption that they have something to say, students will sometimes reach beyond their present knowledge and make a new attempt to say what they mean. Furthermore, students are more likely to retain grammatical coaching when they recognize the need for it.

Nevertheless, grammar, as an adjunct to the writing sequence, must be taught. In addition to the incidental errors gleaned from correcting students' papers, there are larger categories that must be focused upon either because they are prevalent in technical writing, or because they offer special problems that would normally not be found in non-technical writing.

Articles

The article system in English is one of the most difficult grammatical points for a foreign student to master. Even those languages that have an article system differ from English in the application of the rules. Contrary to the opinion of many ESL teachers, however, these rules are not arbitrary and very few instances of article usage are entirely idiomatic. A further difficulty encountered by ESL students, especially in the sciences, is that mistakes made with articles seem to meet with less tolerance than other grammatical errors.

There are four articles in English: a, an, the and ∅ (the zero article). A and an are purely phonetic variants depending on the phoneme that follows. A thorough consciousness of the article system requires a tedious series of judgments for every noun. These judgments are as follows:

1. Is the noun countable or uncountable?
2. Is the noun definite or indefinite (specific or general)?
3. Is the noun generic or non-generic?

The count/noncount distinction is not simply a matter of deciding whether a certain noun is regularly considered a count or a noncount noun, although this is difficult enough, especially for abstract and mass nouns. Many nouns can be made countable or uncountable at will, usually indicating a general state versus a specific one.

Weight is a function of gravity.
They measured a weight of 45 grams.

Steel is manufactured in the eastern U.S.
A high-carbon steel offers a higher
resistance to corrosion.

Definiteness is more easily defined although harder to grasp for most students because it seems arbitrary. An excellent system for teaching articles was presented at the Detroit TESOL convention by List and Oster in their presentation "Teaching Article Usage Through Discourse." The presenters maintained that nontextual sentences provide an inadequate frame of reference for teaching the article because the most successful and most ubiquitous rule for correct article prediction is that of first NP mention (indefinite article, new information) versus second NP mention (definite article, old information).

general, indefinite new info	A(N)	singular countable noun
specific, definite, old info	THE	
general, indefinite, new info	ø	uncountable noun plural countable noun
specific, definite, old info	THE	

The only exceptions to this rule are those cases wherein we consider a noun to be old information at the outset because it is either unique or generic. Uniqueness can be established by certain adjectives (superlatives; sequence adjectives, e.g., the first, the next, the last; or "unique" adjectives, e.g., the only, the same, the one) or by shared knowledge on three levels: world, cultural and special. The shared knowledge consideration becomes the focus of the student's attention as the adjective rules can be applied mechanically. The generic consideration is taught after the student has worked on the first/second mention and the uniqueness factor as it goes against the grammatical schema above. That is to say, the generic article can be any of the four articles and is independent of first/second mention constraints.

An elephant never forgets.

Elephants never forget.

The elephant never forgets.

The most common choice for generic names in scientific English seems to be the for countable nouns and ø for the uncountable.

The maple tree produces maple syrup.

Because of the great difficulty that it presents to students in general, the article system is presented on the first day of the EST writing class and is reviewed continuously throughout the course. The system can be mastered, but only with unrelenting attention to it. One suggestion for those students who have particular difficulty is that they copy a section of text from a textbook or a scientific magazine, deleting the articles. A few days later, the student can attempt to correct the incomplete passage using the original text as an answer key.

Relative Clauses

It is necessary, also, to devote considerable attention to the relative clause. In addition to reviewing subject- and object-form relative clauses as a means of understanding the pervasive reduced forms, a clear knowledge of the defining (restrictive) versus the nondefining (nonrestrictive) distinction is essential.

Relative clauses can be reduced in a number of ways. In a subject-form relative clause, the relative pronoun cannot be deleted. However, if the clause is of the defining type, the pronoun can be deleted provided the verb is changed to the -ing form without a change in meaning (i.e., modal verbs do not allow this transformation).

The man who lectures on Friday is a biologist. (defining)

The man lecturing on Fridays is a biologist.

The man who lectures on Fridays, is a biologist. (nondefining)

*The man, lecturing on Fridays, is a biologist.

In the object-form relative clause, the relative pronoun is customarily deleted. This is not possible, however, if the pronoun is preceded by a preposition. Since prepositions provide us much if not more difficulty than the articles in English, it is not easy for the student to grasp the grammar of

...the beaker which contains the precipitate.

versus

...the beaker in which the precipitate is contained.

The best solution is to break the sentences down to the precombined form to show the relationship between the preposition and its object.

The most common reduction is the deletion of the relative pronoun plus be, which occurs when the word following be is a past or present participle or a preposition.

The money stolen from the bank was never recovered.

The man sitting next to me is a doctor.

The book on the table is mine.

The most common situation wherein the relative clause cannot be reduced occurs when be is followed by an adjective.

The translucent plastic failed to support the weight.

Compound Nouns and Adjectives

One problem that occurs with compound nouns arises from a misunderstanding that the final word in the compound noun is the actual root of the noun phrase. Hence, a car battery is a kind of battery, not a kind of car. The greatest problem in writing, assuming the student understands the compound noun at all as such nouns are sometimes extremely specific to a particular field, is the creation of new compound nouns that are not acceptable to native speakers.

Difficulties with compound adjectives are basically a matter of correct hyphenation. In a noun phrase such as white noise generators, the last two words are perceived as a compound noun modified by the adjective white. A second meaning is indicated by the insertion of a hyphen between the first two words to produce a compound adjective: white-noise generators. The problem is more evident with phrases such as small car factories or a rare book store.

The Passive

Many speakers of English, both native and foreign, presume that most scientific writing is done in the passive. Many modern books concerning technical writing shun the passive as a refusal to accept responsibility.

The fact is that neither of these simplistic answers solves the problem.

By far the most common error in student compositions is the failure to include the all-important be in the passive verb structure. One way to emphasize this point is to review all the tenses of the verb to be by means of a single passive sentence paradigm.

English	is was has been had been will be is being was being	spoken in London.

Such a review serves to emphasize the consistency of and relative ease with which the structure is formed. While the transformation of any sentence from active to passive can be helpful, especially in discussing mistakes, a far more useful exercise is one in which the student must choose whether a given verb should be passive or not. Typical errors that arise from such exercise include the confusion of used to for be used to and comprise for be comprised of and the incorrect forms is happened, is occurred, is consisted of, and is resulted in. There seems to be a tendency in scientific language to put apparently passive verb structures in the active form, hence the semantic identity of the following sentences:

KCl can be substituted for NaCl in the diet.

KCl can substitute for NaCl in the diet.

A sentence such as

The lathe operates at high speed.

is often put in the passive voice by foreign students (especially Japanese) who question, logically, the ability of the lathe to operate without a human agent (this factor is referred to as "anthropomorphism" in Trimble, Trimble and Drobnic's English for Specific Purposes: Science and Technology). Verbs that undergo this change from passive to active seem to have in common a sense of causation in the passive voice which seems obvious enough that it need not be stated.

The color of the solution is changed (is caused to change) from blue to red.

The color of the solution changes from blue to red.

The clouds are moved (are caused to move) towards land.

The clouds move towards land.

The choice of when to use the passive voice is clear in some instances, vague in others.[2] The use of we, you, or one in simple descriptions wherein the writer is reporting known facts is clearly inappropriate. In reporting matters that involve original research, I or we is appropriate if the reference is consistent. We is often used incorrectly to refer, for example, to we geologists in one sentence, to we Venezuelans in another sentence, and to we human beings in yet another.

In general, however, the subject of the controlling sentence in a paragraph determines the use of the active or passive voice. In this example from a student composition,

Heat exchangers are very common in the chemical industry, and we can also find them in many domestic capacities.

the verb find should be passive as the subject we is clearly of less significance than the pronoun them.

Heat exchangers are very common in the chemical industry, and they can also be found in many domestic capacities.

Other Grammatical Points

Other grammatical points are also covered because they occur in, but are not exclusive to, technical writing. These include:

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[2]Tarone, Dwyer, and Gillette in their presentation entitled "On The Use of the Passive in Two Astrophysics Journal Papers" at the TESOL convention in Detroit found that the passive is used selectively in astrophysics journals 1)"when the authors are simply following established or standard procedure," whereas the active is used for unique procedural choices; 2) for work being contrasted to their own, whereas the active is used for "contemporary work not in contrast to their own"; and 3) to "refer to their own proposed future work."

1. adverbial and other subordinate clauses

2. comparative structures (especially useful in feasibility studies and other such analyses)

3. dangling modifiers

4. grammatical parallelism (especially useful in constructing "plan of development" sentences)

5. pre-nominal adjective order (taught in conjunction with compound adjectives)

6. prepositions

7. punctuation (especially the commas associated with single-letter appositives and non-defining relative clauses)

8. specific difficulties

   a. as vs. like

   b. other vs. another vs. others, etc.

   c. most vs. mostly vs. almost, etc.

There are some grammatical areas that are specifically not prevalent in technical writing. These include the more erudite constructions found in expository writing such as absolute phrases and gerund constructions (the latter occurring not more than 3% of the time compared to infinitives according to Louis Trimble at the Detroit convention). In addition, the intricacies of the English modal system[3] and indeed all the complex verb structures of the language are not dwelled upon because of the fact that scientific writing generally tends to place weight on nominal constructions. According to Swales in Writing Scientific English, "about a third of all scientific statements have is or are as the main verb...The other common verb is have."

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[3]The most frequent modals to appear in scientific writing, according to John Lackstrom in English for Specific Purposes: Science and Technology (see bibliography), are may, which is used to make suggestions, and can, which is used to express capability. Modals are also used to hedge, especially in reporting scientific data for the first time.

The spiral motion of air above a low-pressure area is always in a counter-clockwise direction. (Writing Scientific English)

The investigators have preliminary results demonstrating endorphin-like material in tetrahymena. (Scientific News)

Stylistic and Rhetorical Points of Special Interest

Definitions

Since the first writing assignment is to write an amplified definition, the concept and structure of a formal definition is taught early. The classic Aristotelian definition formula,

A SPECIES is a CLASS that DIFFERENTIATES CHARACTERISTICS

A thermometer is an instrument that measures temperature.

provides a good launching point into three important areas of grammar: articles, subject-verb agreement, and defining relative clauses. The differentiating characteristics can take a number of forms (e.g., description, composition, functioning of parts, purpose, similarities), which will later be referred to in teaching noun compounds as most can be classified in the same way. Finally, the formal definition is presented initially as an ideal first sentence of a composition, at least for the shorter reports, as it enables the student writer to get right to the point and avoid traditional personal or irrelevant introductions such as, "I am going to tell you about..." or "The thermometer is a very useful instrument."

Transitional Devices

In addition to teaching the standard adverbial conjunctions (however, nevertheless, consequently, etc.), it is important to stress the device called "key-phrasing" by Swales (see bibliography) which uses the demonstrative this plus a nominalization of a previous verb form to provide "textual glue" (Fraida Dubin's term).

sulphur deposits lie too deep --- this deep lying sulphur
(earlier reference) (later reference)

The understanding of this device paves the way for the discussion of the implicit definition which is common in scientific writing.

"...its pressure decreases to some value below atmospheric. This negative pressure..."[4]

Finally, a word should be said for the natural sequencing that is implied in the description of a mechanism or process. The plan of development sentence implies a definite order as far as individual parts or processes are concerned, and the reader expects either a spatial or a chronological succession in the description of any one of these parts or processes. Hence, the use of then or now or next or after that is often redundant or wordy, and the teacher must sometimes restrain the student's tendency to link every sentence with a transitional device.

Paraphrasing and Quoting

Students are often warned not to copy other people's material. We teachers respond very culturally to such "crimes," sometimes going to great lengths to prove that a student has cheated. We tell them to quote material that is not their own, yet unrestrained quoting is unacceptable in written reports. Usually, we just say, "paraphrase," but rarely do we give students a technique by which paraphrasing can be practiced.

The foreign student's first attempt to paraphrase usually involves determining synonyms for the central content vocabulary while maintaining the original sentence structure. Thus,

"Give me liberty or give me death."

might be rendered as

Give me freedom or give me extinction.

Since in scientific literature there is often no adequate synonym for the terms used, I teach my students to keep the central context words and to change the sentence structure. Returning to the above example, a possible paraphrase might be

If I can't have liberty, I'll take death.

or

Liberty is more important to me than death (or life).

---

[4]Weisman, H. M. 1963 Basic Technical Writing, Columbus Ohio, Merril, quoted in Trimble, Trimble and Drobnic, English for Specific Purposes: Science and Technology (see bibliography).

Chronologically, this concept is introduced in preparing the class to write an abstract of a full-length scientific article.

Wordiness

The concept "wordiness" is taught late in the course as it presumes a fair knowledge of grammaticality in English. Although there are different techniques for making a passage less wordy, I limit these to two. The first technique is to remove extra-positioned subjects (it and there) in those situations wherein the reader is told that something exists and then what it is.

> There are three forms of water. They are the solid, liquid, and gaseous phases.

These sentences are better stated as

> The three forms of water are the solid, liquid, and gaseous phases.

Similarly,

> It is with the third process that this paper is concerned.

becomes

> This paper concerns the third process.

The second technique involves the recognition that a "strong" verb has been nominalized and a secondary "weak" verb inserted.

> The doctor performed an examination of the patient.
>
> The doctor examined the patient.

This technique is often easier for a foreign student to master than a native speaker because s/he does not labor under the misconception that the embellishment of simple, direct words sounds more elegant or impressive.

Figures, Graphs, and Equations

The cardinal rule for figures and graphs is that they be clearly labeled and referred to in the text. Labeling brings up the concept of reduction in regard to articles, as labels (and

sometimes titles) usually omit all but the meaning-altering articles (e.g., few/a few, most/the most, man, a man). Figures must also be placed appropriately in the text to make them of maximum use to the reader (i.e., not at the end such that the reader must continuously flip back and forth).

Equations should be centered alone on the page, should have all components identified, and should be numbered consecutively if they are used to develop a logical argument or proof.

$$E = mc^2 \qquad (1)$$

where E = energy in ergs
m = mass in grams
c = velocity of light in cm./sec.

Other Stylistic and Rhetorical Points

Other stylistic and rhetorical points are covered including:

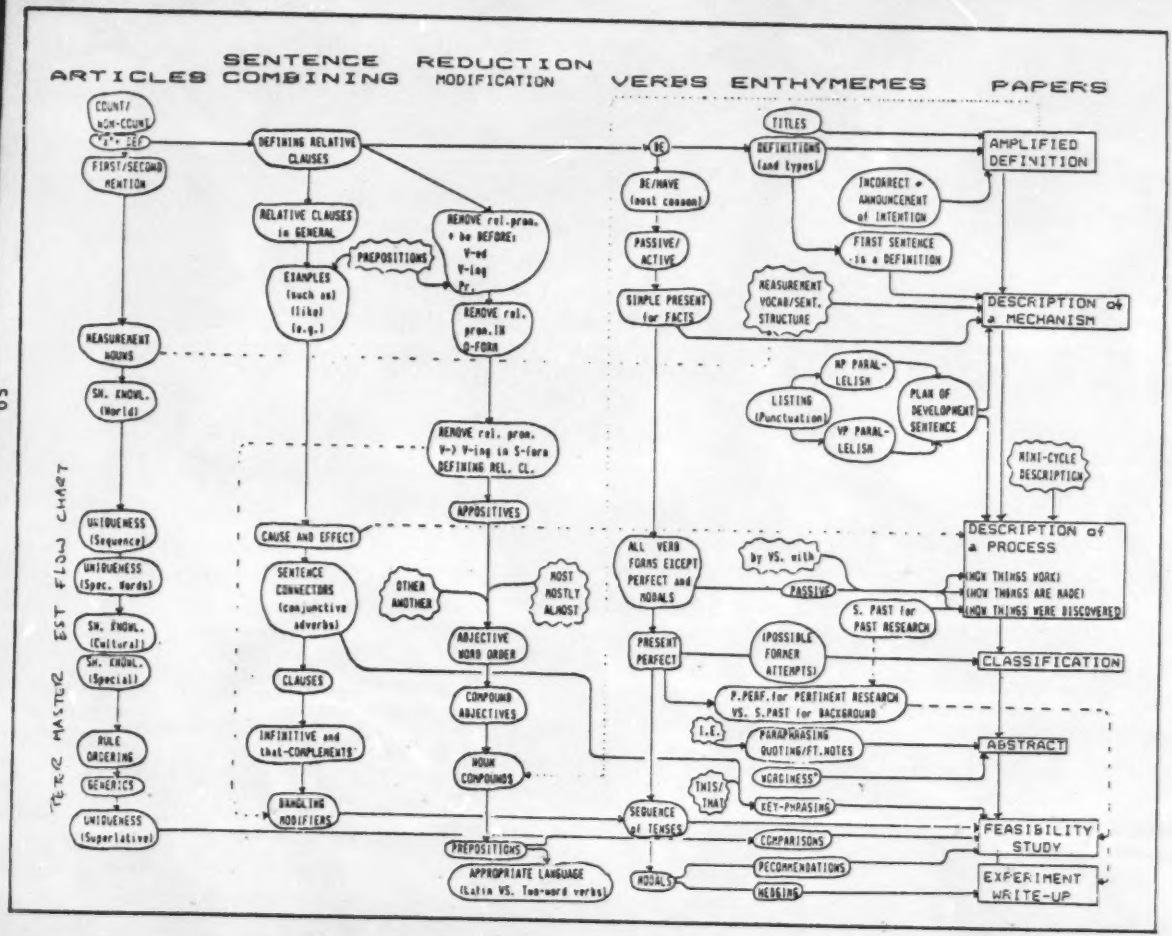
1) personal vs. impersonal tone (including "I am going to tell you about..." introductions)
2) consistency of tone (e.g., not switching from descriptive to imperative mode)
3) dimensions and qualified dimensions (e.g., The book is (almost) two inches wide; The book has a width of (approximately) two inches; The width of the book is (just under) two inches.
4) vocabulary
   a. mathematical terms (e.g., addition, to add, sum, plus)
   b. basic equipment (e.g., Bunsen burner, flask, clamp, etc.)
   c. idiomatic expressions (e.g., is equal to vs. equals, consists of vs. consists in, comprises vs. is comprised of, contacts vs. is (comes) in contact with)
   d. spelling of words frequently misspelled on students' papers

Actualization

The experience of scientific English is encouraged in a number of ways. 1) Selections from the magazine Science News are

required reading for the reading journal in the reading class. These consist of short current articles less than a page in length from which students must make a selection in their own fields. 2) The students are encouraged to use the library on campus for their writing assignments. To this end, the course meets MWF rather than daily so that the students have time to do such research. 3) The students are required to view two videotapes in their fields from the Educational Television department on campus. They may view the tapes as often as necessary to be able to write a summary of the tape and a list of new vocabulary encountered. This is one means of building up specialized vocabulary. 4) When possible, the students are taken to visit an example of a working environment wherein their field is practiced. Medical, biology, and pharmacy students are taken to a local hospital to visit a cancer ward and/or the hospital pharmacy. Engineering students are taken to a local engineering firm specializing in technological solutions.

The following chart attempts to depict the relationship of the various grammatical and rhetorical points covered in class to the writing sequence on the right. Grammar is developed vertically in four general areas: articles, sentence combining, reductions, and verb forms. The enthymemes (term taken from Bley-Vroman in Trimble, Trimble, and Drobnic's English for Specific Purposes: Science and Technology) are presented prior to the writing assignment but do not necessarily represent a developmental sequence.


SENTENCE COMBINING
REDUCTION MODIFICATION
ARTICLES
VERBS
ENTHYMEMES
PAPERS
COUNT/ NON-COUNT
"A" vs. "THE"
FIRST/SECOND MENTION
DEFINING RELATIVE CLAUSES
RELATIVE CLAUSES in GENERAL
EXAMPLES (such as) (like) (e.g.)
PREPOSITIONS
REMOVE rel.pron. + be BEFORE: V-ed V-ing Pr.
REMOVE rel. pron. IN Q-FORM
REMOVE rel. pron. V-) V-ing in S-form DEFINING REL. CL.
APPOSITIVES
ADJECTIVE WORD ORDER
COMPOUND ADJECTIVES
NOUN COMPOUNDS
PREPOSITIONS
APPROPRIATE LANGUAGE (Latin VS. Two-word verbs)
BE
BE/HAVE (most common)
PASSIVE/ ACTIVE
SIMPLE PRESENT for FACTS
ALL VERB FORMS EXCEPT PERFECT and MODALS
PRESENT PERFECT
SEQUENCE of TENSES
MODALS
TITLES
DEFINITIONS (and types)
INCORRECT + ANNOUNCEMENT of INTENTION
FIRST SENTENCE is a DEFINITION
AMPLIFIED DEFINITION
MEASUREMENT VOCAB/SENT. STRUCTURE
DESCRIPTION of a MECHANISM
NP PARALLELISM
LISTING (Punctuation)
VP PARALLELISM
PLAN OF DEVELOPMENT SENTENCE
MINI-CYCLE DESCRIPTION
by VS. with
PASSIVE
S. PAST for PAST RESEARCH
DESCRIPTION of a PROCESS
(HOW THINGS WORK)
(HOW THINGS ARE MADE)
(HOW THINGS WERE DISCOVERED)
(POSSIBLE FORMER ATTEMPTS)
CLASSIFICATION
P.PERF. for PERTINENT RESEARCH VS. S.PAST for BACKGROUND
I.E.
PARAPHRASING QUOTING/FT. NOTES
ABSTRACT
"ORGINESS"
KEY-PHRASING
THIS/ THAT
COMPARISONS
RECOMMENDATIONS
HEDGING
FEASIBILITY STUDY
EXPERIMENT WRITE-UP
MEASUREMENT WORDS
SH. KNOWL. (World)
SH. KNOWL. (Cultural)
SH. KNOWL. (Special)
UNIQUENESS (Sequence)
UNIQUENESS (Spec. words)
UNIQUENESS (Superlative)
RULE ORDERING
GENERICS
CAUSE AND EFFECT
SENTENCE CONNECTORS (conjunctive adverbs)
OTHER ANOTHER
MOST MOSTLY ALMOST
CLAUSES
INFINITIVE and that-COMPLEMENTS
DANGLING MODIFIERS
TERM MASTER LIST FLOW CHART
TEXT FLOW CHART

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